

**COLORADO WATER QUALITY CONTROL COMMISSION
STATE OF COLORADO**

**RESPONSIVE PREHEARING STATEMENT
OF THE WATER QUALITY CONTROL DIVISION**

**REVISIONS TO RECLAIMED WATER CONTROL REGULATION, REGULATION 84
(5 CCR 1002-84)**

This Prehearing Statement is intended to convey the Water Quality Control Division's (Division) response to the Water Quality Control Commission's Proponents Prehearing Statement to the above captioned hearing.

Response to Commission's Proponents Prehearing Statement.

Except for the proposed revised language included in (1) and (2) below, the Division supports the proposed revisions to the Reclaimed Water Control Regulation, Regulation #84 (5 CCR 1002-84) provided by the Proponent.

1. Category 2 Water for Vehicle Washing

a. Summary

The Division does not recommend the Commission adopt revisions to Regulation 84.9 that authorize the use of Category 2 water for vehicle washing (automatic or manual) where inhalation of water aerosols by the public or workers may occur. Therefore, the Division proposes revising the proposal to require BMPs to "prevent" inhalation of aerosols when Category 2 water is used for vehicle washing, as provided in the "Recommendation" section, below. This would be a revision to the Proponent's proposal that authorized the use of controls that would only minimize exposure for these uses.

The purpose of Regulation 84 as stated in 84.2 is to "establish requirements, prohibitions, standards and concentrations limits for the use of reclaimed water to protect public health and the environment while encouraging the use of reclaimed water." Although the Division is not aware of any studies or other evidence that document a human health risk from aerosols associated with disinfected reclaimed water, the Division does not believe that the Proponent provided sufficient information to demonstrate that the risk to human health is low enough that it is appropriate to expand the use of Category 2 reclaimed water to vehicle washing with controls that would only minimize exposure. The Division has not identified concerns with approval of Category 3 water for vehicle washing, as Category 3 water has a higher standard of pathogen reduction.

The vehicle washing uses proposed have the potential to generate large quantities of aerosols, and significant human exposure to those aerosols. The resulting potential human health risks associated with these uses are unique, and more significant than other approved uses in Colorado, as discussed in the section on “Aerosols,” below. The Proponent did not provide examples of other agencies that have approved this use with reclaimed water of a similar quality to Colorado’s Category 2 water, nor is the Division aware of such approved uses. For these reasons, the Division recommends that the Commission should conduct a higher level of evaluation of the potential risks associated with this use prior to adopting regulations that would expand the use of Category 2 water to include vehicle washing where exposure to aerosols occurs. At this time, the Division does not believe that the Proponent has adequately characterized the risk to public health associated with the inhalation of aerosols resulting from Category 2 Reclaimed Water used in vehicle washing.

In addition, the Division is not aware of any entity in Colorado that is currently considering the use of Category 2 reclaimed water for vehicle washing and therefore there is no immediate need for this revision.

The Division does concur with the section of the Proponent’s recommendation to allow Category 2 water for vehicle washing where public and worker inhalation of aerosols can be *prevented* (italics inserted). If all inhalation of aerosols is prevented, such as through the use of protective equipment that prevents aerosol inhalation, it is not necessary that the Proponent provide additional information to assess this exposure route. Therefore, the Division proposes the approval of this use with Category 2 water when controls are implemented that are documented to provide prevention of aerosol inhalation. However, the other controls identified by the Proponent would only minimize, not eliminate, inhalation of aerosols, and the extent to which the BMPs minimize exposure was not addressed. As such, the Division has no standard for use in evaluating if the level of minimization is protective of human health. As discussed in the “Relevance to Additional Uses” section below, the Division has not identified concerns with the requirement for BMPs to minimize exposure for other uses, which is consistent with previous Commission determinations and the 2012 USEPA Guidelines for Water Reuse. Therefore the Division is proposing adding new controls to address aerosols from vehicle washing that require prevention when Category 2 water is used, while keeping the current BMP requirement that allow for minimization for other uses.

b. Recommendation

The Division recommends the following revisions to the Proponents proposed language for Regulation 84:

- i. The Division proposes the following revision to 84.8, Table A, “Reclaimed Water Uses,” of the Proponent’s proposal to apply the new conditions for aerosol exposure prevention included in part iii, below.

This revision replaces the Additional Condition “7” with Additional Condition “8” for the Automated Vehicle Washing and Manual Non-Public Vehicle Washing approved uses.

Proponent’s Language:

<u>Automated Vehicle Washing</u>	<u>Not Allowed</u>	<u>Allowed</u>	<u>Allowed</u>	<u>3,7</u>
<u>Manual Non-Public Vehicle Washing</u>	<u>Not Allowed</u>	<u>Allowed</u>	<u>Allowed</u>	<u>3,7</u>

New Division’s Language:

<u>Automated Vehicle Washing</u>	<u>Not Allowed</u>	<u>Allowed</u>	<u>Allowed</u>	<u>3,8</u>
<u>Manual Non-Public Vehicle Washing</u>	<u>Not Allowed</u>	<u>Allowed</u>	<u>Allowed</u>	<u>3,8</u>

- ii. The Division proposes adding a new section 84.8(A)(8) that includes the new condition for aerosol exposure prevention that will be applicable to vehicle washing with Category 2 water .

New Division’s Language:

“ (8) Where there is the potential for worker or public exposure to aerosols generated in the use, Users of Category 2 Reclaimed Water shall employ measures to prevent the inhalation of aerosols from reclaimed water by workers and the public. Measures shall include at least one of the following: personal protective equipment documented to prevent aerosol inhalation; or functionally equivalent measures approved by a qualified individual (e.g., a certified industrial hygienist) and documented to prevent aerosol inhalation.”

- iii. To address the above proposed revisions to the regulation, the Division proposes the following revisions (identified with strike out and underline) to the Proponent’s new Section 84.25 Statement of Basis and Purpose part on Commercial Laundries, Automated Vehicle Washing, and Manual Non-Public Vehicle Washing .

“Commercial Laundries, Automated Vehicle Washing, and Manual Non-Public Vehicle Washing

The Commission approved three new uses not previously authorized under Regulation 84 (Commercial Laundries, Automated Vehicle Washing, and Manual Non-Public Vehicle Washing) based upon an evaluation of the potential human health risks via ingestion, inhalation, dermal contact and cross-connection as well as the potential for discharging reclaimed water to a water of the state (groundwater or surface water). BMPs for each use and allowable water qualities were specified to minimize these risks. In assessing the proposed modifications to Regulation 84, typical uses of water in commercial laundries and automated and manual vehicle washing facilities were reviewed to characterize the likelihood and impacts of human contact with reclaimed water and releases of reclaimed water to waters of the state.

The Commission found that the potential for ingestion is negligible for all three

proposed uses, in light of the limited access to the public and the commercial and industrial nature of the water use. The risk of ingestion in these new uses is further mitigated by the BMPs specified for these uses in Regulation 84. In light of the potential worker or public contact with aerosols in vehicle washing applications, the Commission considered additional information to assess the potential for human health effects of such contact. This information included the 2012 USEPA Guidelines for Water Reuse, regulations in other states that authorize commercial laundry and vehicle washing uses, a risk assessment based on available research and literature regarding health impacts of inhalation of recycled water aerosols, and a comparison of water quality in internally-recycled vehicle washing water systems fed by potable water to the water quality of recycled water produced by an existing Treater. This indicated to the Commission that a high level of disinfection (Category 3 water) is appropriate for situations where there is a high likelihood of frequent worker contact with reclaimed water aerosols for these uses. Alternatively, BMPs should be employed to prevent frequent worker inhalation exposure if less stringent disinfection Category 2 water is employed.

The Commission found that:

- Secondary treatment and disinfection (Category 2 Reclaimed Water) is an appropriate treatment requirement for the use of reclaimed water in commercial laundry ~~and vehicle washing facilities~~ where there is no frequent worker or public exposure to aerosols generated from reclaimed water use.
- In vehicle washing facilities with a high-likelihood of frequent worker or public exposure to aerosols generated from reclaimed water use, filtration and high-level disinfection (Category 3 Reclaimed Water) provides human health protection against aerosol inhalation risks. Alternatively, BMPs must be used to prevent the frequent inhalation of aerosols with use of Reclaimed Water Category 2.
- Effective BMPs for physically preventing frequent human contact with aerosols may include 100-foot setback distances (similar to the irrigation setback from water supply wells specified under Section 84.9(C)(9), and consistent with other states' requirements for protection of food preparation or consumption areas), physical barriers such as curtains or other means of containing aerosols to the area of generation, personal protective equipment documented to prevent inhalation of aerosols, or other means as documented by a certified industrial hygienist ~~may be appropriate to the site and use.~~

Accordingly, the Commission approved the addition of ~~the two~~ new Additional Conditions at Section 84.8(A)(7) and 84.8(A)(8) for applicability to Commercial Laundries, Automated Vehicle Washing, and Manual Non-Public Vehicle Washing as identified in 84.8 Table A. The Commission also determined that ~~this~~ the Additional Condition in 84.8(A)(7) is applicable to the following renamed and new uses, in consideration of the type of use and potential for frequent worker or public exposure to aerosols: Washwater Applications, Non-Discharging Construction and Road Maintenance, and Non-Evaporative Industrial Processes, ~~Commercial Laundries, Automated Vehicle Washing, and Manual Non-Public Vehicle Washing.~~

c. Relevance to Additional Uses

Although the Division is identifying concerns associated with aerosols from Category 2 water for the proposed new vehicle washing uses, the Division is not recommending that the Commission reevaluate the currently approved uses or

other proposed new uses, which do not have similar conditions. The EPA addresses the risks from aerosol inhalation for cooling towers and irrigation in its 2012 USEPA Guidelines for Water Reuse, and generally concludes that the human health risks are acceptable when limited through design or operational controls. The Division believes that it is appropriate to apply this conclusion to the other approved and proposed uses, and has not identified any significant variables that should result in a different conclusion for those uses. However, several variables associated with the vehicle washing uses are considerably different for evaluating health risks from aerosols. Specifically, vehicle washing often uses pressurized nozzles in confined spaces that general significant potential for aerosol inhalation, both within the confined space and potentially in other areas in close vicinity.. Although cooling towers specifically have a high level of aerosol generation, potential for human exposure is inherently lower due to the nature and locations of the use.

In addition, the Division is not identifying concerns with human health risks from aerosols associated with the use of Category 3 water for vehicle washing. Category 3 water is subject to stringent standards for pathogen reduction and is highly disinfected. Several other states have currently made similar determinations that highly disinfected water is appropriate for this use, as documented in the Proponents Prehearing Statement.

d. Aerosols

Aerosols are a distinct vector of pathogen transmission that is different from either ingestion or dermal contact in that there is no dermal or digestive barrier to inhaled pathogens. “The infective dose of some pathogens is lower for respiratory infections than for infections via the gastrointestinal tract; thus, for some pathogens, inhalation may be a more likely route for disease transmission than either contact or ingestion.” (2012 USEPA Guidelines for Water Reuse). Examples of pathogens that may pose a specific threat via aerosols include *Legionella* (a cause of Legionnaires Disease) and *P. aeruginosa* (a cause of a form of pneumonia). It is for this reason that the swim beach standards, which were based on risk-assessments that only considered gastro-intestinal illness and did not assess high aerosol environments, are not appropriate when determining the risk associated with aerosol inhalation of reclaimed water.

The Division is currently not aware of information that evaluates the risk associated with the exposure to reclaimed water aerosols. In addition, no information was provided that would quantify the level of exposure to the public or the workers that would occur based on the BMPs proposed that would result in a reduction of exposure (i.e., 100 foot setback or physical barriers such as curtains) instead of a prevention of exposure. Unless this risk can be better characterized, it is not possible to determine that the level of risk to human health has been acceptably mitigated.

e. Studies and Identified in Proponent's Prehearing Statement

The Proponent's prehearing statement references a conclusion in the 2012 USEPA Guidelines for Water Reuse that inhalation of reclaimed water presents a risk to human health only when water is not disinfected or improperly disinfected. However, this EPA conclusion is associated with the use of reclaimed water in cooling towers. The frequency and extent of exposure to aerosols at a vehicle wash is not comparable to that for cooling towers.

The Proponent's prehearing statement also references a study conducted associated with a car wash in Brazil that is cited in the 2012 USEPA Guidelines for Water Reuse. This study was not conducted for reclaimed domestic wastewater. The reclaimed water referenced in the study was potable or groundwater that was used only at the vehicle wash and then treated and recycled on-site. This reclaimed vehicle wash water could not be expected to be of comparable character as reclaimed domestic water. In addition, it is unclear what variables were taken into account in the risk analysis model referenced from this study. Although, this information may be potentially useful in determine the risk from reclaimed domestic wastewater in Colorado, enough information was not provided to determine if this was the case. Specifically, it is unclear if the model accounted for similar pathogens, exposure pathways (ingestion versus inhalation), or doses.

It is important to note that no other state entity has approved the equivalent of Category 2 water for use in vehicle washes. All of the states referenced in the Proponent's prehearing statement only authorize the use of water that is generally as restrictive, or more restrictive, for pathogens treatment than Colorado's "Category 3."

2. Clarification to Statement of Basis

a. Recommendation

Paragraph 4 in the proposed Statement of Basis and purpose language, inaccurately presents the changes to several previous approved uses as "modifying the nomenclature and clarifying the definition." Subsequent language within the Statement of Basis and Purposes more accurately discusses that these approved uses has been expanded to include similar uses within the renamed categories. The Division proposes the following replacement language, identified with strike out and underline, for this paragraph.

"The Commission found that the following modifications to the ~~nomenclature for~~ authorized uses in Section 84.8 Table A are consistent with the intent of the original authorization of these uses, and presents no increase in the potential risk to human health or the environment. By modifying the nomenclature, ~~and clarifying the definition,~~ and adding additional comparable uses for ~~of~~ these approved uses, similar industrial and commercial uses with similar human exposure, environmental release potential, and cross-connection potentials will be afforded the same protections under Regulation 84 and the individual Notices of Authorization issued by the Division."